

## L 3.4 Systems of equations in three variables

Find the solution.	$3x + 6y - 2z = -6$ -----> equation 1 $2x + y + 4z = 19$ -----> equation 2 $-5x - 2y + 8z = 62$ -----> equation 3
<b>Step: 1</b> Multiply the equation 2 by -6 Combine equations 1 and 2	$3x + 6y - 2z = -6$ $-12x - \quad - \quad =$
Eliminate y terms	$-9x - 26z =$ -----> equation 4
<b>Step : 2</b> Multiply equation 2 by 2 Combine equations 2 and 3	$4x + y + z = 38$ $-5x - 2y + 8z = 62$
Eliminate y terms	$-1x + \quad = 100$ -----> equation 5
<b>Step: 3</b> Multiply equation 5 by -9 Combine equations 4 and 5	$9x - \quad = -$ $-9x - 26z = -120$
Eliminate x terms	$= -1020$
	<b>Z =</b>
<b>Step:4</b> Substitute $z =$ in equation 5	$-1x + 16( \quad ) = 100$ $-1x + \quad = 100$ $-1x =$ <b>x =</b>
<b>Step: 5</b> Substitute $x =$ and $z =$ in equation 1	$3x + 6y - 2z = -6$ $3( \quad ) + 6y - 2( \quad ) = -6$ $\quad + 6y - \quad = -6$ $6y = -6$ $6y =$ <b>Y =</b>
Solution	$(x,y,z) = ( \quad , \quad , \quad )$